

unacquainted with any other plant, except the *Gloriosa*, which exhibits the innermost layers of the compound starch forms with such remarkable distinctness.

XXVIII.—*Note on some Marine Animals, brought up by Deep-sea Dredging, during the Antarctic Voyage of Captain Sir JAMES C. Ross, R.N.*

To Richard Taylor, Esq.

MY DEAR SIR, West Park, Kew, Aug. 31, 1845.

HAVING remarked, in the notice given of Mr. Goodsir's valuable labours in the last number of the 'Annals of Nat. Hist.,' that 300 fathoms is supposed to be the extreme depth from which living animals have been dredged, I think it may interest some of your readers to know that Sir James Ross, during the late Antarctic Voyage, used the dredge on several occasions with considerable success in the same and in much deeper water.

In latitude $33^{\circ} 32'$ S. and long. $167^{\circ} 40'$ E., living specimens of *Hornera frondosa*, besides four other Corals, a *Dictrupiu*, two *Ophiuræ*, an Annelide, one small *Echinus* (and the spines of another, three inches in length), were all procured in a living state from 400 fathoms.

Off Victoria Land, between the parallels of 71° and 78° of south latitude, the dredge was repeatedly employed; once with great success at 380 fathoms. Generally the contents of the net, after dredging at between 200 and 400 fathoms in these latitudes, were various Crustacea, as numerous *Nymphia*, *Pycnogona* of a very large size, and such Arctic genera as *Crangon*, *Alpheus*, *Gammarus* and *Idotea*, the species sometimes resembling very closely indeed those that Capt. Ross had met with during the North Polar voyages: of Mollusca, the genus *Chiton*, *Boltenia*, and the remains of both univalve and bivalve shells, of which we found no traces on the lands we visited; various Annelides and *Serpulæ*, *Ophiuræ* and *Asteriæ*, *Alectos*, *Bicellariæ*, an Eocrinite resembling the Irish one, very many *Virgulariæ* and Sponges, with *Holothuria* several inches in length. The pebbles were generally covered with *Flustræ*; but on one occasion a magnificent mass of syenite was procured, the edges of which were sharp and the surface clean; it must have been but recently deposited by an iceberg, for the greater proportion of the stones around were of trap or basalt of various kinds.

The most remarkable circumstance connected with this subject of deep-sea dredging is, that the bottom of the Antarctic Ocean, near the lands visited by Sir James Ross, was found to be covered with a mud consisting in great part of the remains of Infusoria,

very similar to those forming the "fossil powder" detected in the neighbourhood of New York and in other parts of the globe. Prof. Ehrenberg has described from our collections as many as 140 species, or thereabouts, all brought from the vicinity of Palmer's and Victoria Land. In a living state they inhabit the surface of the ocean and the newly-forming ice, and afford food for *Salpa* and animals of a higher organization; which, in their turn, nourish the most fully-developed beings inhabiting those regions where the animal kingdom lives and abounds independently it would seem of the vegetable. Well may we agree with Professor Owen in regarding these "minute Infusory animalcules" as "the wakeful members of nature's invisible police, everywhere ready to arrest the fugitive organized particles which are suspended in water, and to turn them back into the ascending stream of animal life."

It is probable that animal life exists at a very great depth, suspended in the ocean. On one occasion a sounding-line that had been lowered to 1000 fathoms brought up at the 550-fathom mark, long strings of animal matter, about the diameter of a crow-quill, of indefinite length, great elasticity, and as viscid as bird-lime. It is certainly possible that in descending or ascending the line may have become entangled with this substance nearer the surface; but I am not inclined to suppose so for the following reasons: because the tow-net was constantly used, both during and before and after the soundings, without procuring any of the substance; because its viscosity was so great, that no other part of the line could well have passed through without a portion adhering to it; and because, upon two future occasions, the same substance came up on the sounding-line from unquestionably very deep water.

Allow me to conclude by expressing my earnest hope that your pages may be destined to announce the results of dredgings at far greater depths than those I have just mentioned, and in lesser ones too, from all longitudes between Baffin's Bay and Behring's Straits; for I am satisfied that every means of forwarding this object will be granted to Mr. Goodsir, who has already proved himself admirably qualified to turn such opportunities to the best account.

Believe me ever yours very truly and respectfully,

JOSEPH DALTON HOOKER.